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EXAMINER	
POLTORAK, PIOTR	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/716,656	CHERITON, DAVID R.	
	Examiner	Art Unit	
	PETER POLTORAK	2434	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,6-11,14-20,22,24-31,34-41 and 43-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,6-11,14-20,22,24-31 and 34-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/23/09 has been entered.

Response to Arguments/Amendments

2. In light of applicant's amendment the 35 USC § 101 rejections cited in the previous Office Action towards claims 1, 4, 6-11, 14-20, 22 and 24-29 and 40-49 are withdrawn. However claims 30-31 and 34-39 remain rejected as directed towards the non statutory subject matter. Additionally, the updated search resulted in the newly discovered art that is cited below.

Claims 1, 4, 6-11, 14-20, 22, 24-31, 34-41 and 43-49 have been examined.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claimed invention cited in claims 30-31 and 34-39 is directed to non-statutory subject matter.

3. Claims 30-31 and 34-39 claim computer program product comprising a computer-readable storage medium. However, in order to meet the requirements of the patentability, software must be embodied on non-transitory computer-readable storage medium. Although the specification offers examples of such computer-readable storage media type (i.e. CD-ROM, ROM), the specification expressly notes that these examples are "non-exclusive" and a skilled artisan would recognize that, as a result, the "computer-readable storage medium" cited in the preamble permits the non-statutory embodiment media, such as carrier wave or a signal.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 40-41 and 43-49 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention.

4. Claims 40-41 and 43-49 are drafted using "means plus function" limitations. However, the examiner did not find correlation of the specific "means" to the disclosed structure, acts, or materials to carry out the recited functions in the specification. It is noted that even though claims 20, 22, 24-26, 30-31 and 34-36 as well as the specification (see the corresponding USPUB 2005/0129019, paragraph 68-69, for example) clearly suggest the claimed functionality being realized in software, no computer code (either specific or a pseudo-code) is offered in the specification that would support the claimed "means". Thus, the examiner is unable

to interpret the exact scope of claim limitations under 35 U.S.C. 112, sixth paragraph.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 10-11, 14-16, 20, 22 and 24-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Daruwalla (USPN 6693878).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

5. As per claim 10, Daruwalla teaches assigning a security group identifier (SGI) to a packet, wherein said SGI is assigned based on a security group of a sender of said packet (see SID in Fig. 7) classifying said packet based on said SGI (When CMTS 324 receives the packet from CM3, the CMTS identifiers the SID associated with the packet and consults the SID/VPN mapping table 700 (FIG. 7) to determine if the

identified SID is associated with aparitualcur VPN/sub-interface, col. 15 lines 7-12), determining a routing of said packet, wherein said determining is based on said SGI (In a specific embodiment, the SID is pre-pended to the EP packet, and is part of the MAC header in the packet. In this example of Fig. 3A, the CMTS will determine that the SID identifying cable modem CM3 is associated with the virtual private network VPN1, col. 15 lines 13-17), and forwarding said packet via a tunnel identified by said routing, if forwarding a packet having said SGI via said tunnel is permitted (Next, the CMTS examines the packet's routing information in order to determine the destination IP address of the packet. Once the destination IP is obtained the CMTs then consults the VRF Table associated with VPN1 (e.g. Table 800 of Fig. 8), in order to determine whether the packet's destination IP address falls within any of the recognized destination IP address ranges specified by the VPN1 VRF Table 800. Presumably, in the example of Fig. 3A, the packet's destination IP address will fall within any of the recognized destination IP address ranges specified in the VPN1 VRF Table (e.g. IP address range [Range1]), and the CMTS will route the packet using an MPLS protocol, to the specified next hop (e.g. Next Hp1). The packet will eventually travel from the CMTS 324 to the VPN1 CE device 352 along a MPLS VPN communication path 311, see col. 15 lines 18-32).

6. As per claims 14-15, Daruwalla discloses assigning a security group identifier (SGI), determining a routing of the packet based on the SGI and sending the packet (When the CMTS 324 receives the packet from CM3, the CMTS identifies the SID associated with the packet from CM3, the CMTS identifies the SID associated with

the packet and consult the SID/VPN mapping table 700 (Fig. 7) to determine if the identified SID is associated with a particular VPN/sub-interface... Next, the CMTS examines the packet's routing information in order to determine the destination IP address of the packet. Once the destination IP is obtained, the CMTS then consults the VRF Table associated with VPN1 (e.g. Table 800of Fig. 8), in order to determine whether the packet's destination IP address ranges specified by the VPN VRF Table 800 ... and [if does] route the packet, see col. 15 lines 5-35). Furthermore, the VRF Table (example shown in Fig. 8) comprising SGI and Tunnel ID field (i.e. VPN1) meets the limitation of ACL and as seen in Fig. 7 and 8 and discussed in col. 15 lines 5-35, Daruwalla teaches an index comprising SGI used to access the ACL (see col. 15 lines 5-35 cited above).

7. As indicated above, the routing of the packet via a particular tunnel equated to the result of the classification stage meets the limitation of claim 11. Alternatively, either a set or a subset of mapping Tunnel ID to SID/IP address ranges, taught in col. 15 lines 5-35 meet the limitation of classifying of the packet.
8. As per claim 16, CM and CE Device (i.e. 306 and 352) meet the limitations of an ingress and an egress routers; However, it is noted that, alternatively, in the broadest reasonable interpretation the Head End 322 could also meet the limitation of an ingress router (see Fig. 3, Fig. 3 A and B and associated text).
9. Claims 20, 22, 24-26 are substantially similar to claims 10-11 and 14-16 (computer system functionalities are achieved by processors running computer code stored on

computer readable storage medium); thus, claims 20, 22, 24-26 are similarly rejected.

Claim Rejections - 35 USC § 102 or 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 6-9, 30-31, 34-36, 40-41and 43-46 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Daruwalla (USPN 6693878).

10. Although, as per claims 30-31, 34-36, 40-41and 43-46, the limitation are substantially similar to previously discussed limitations, Daruwalla does not expressly teaches separating computer code to separate instructions (i.e. a first set of instruction ... configured to assign a security group ..., a second set of instructions ... configured to classify said packet based on said SGI, etc.). However, a set or subset of the code offering the functionalities discussed above meet the corresponding set of instructions that are mapped to particular functionalities in claims 30-31 and 34-36. Furthermore, stages and sections cited in claims 1, 4, 6-8 as well as (as best understood) the means cited in claims 40-41 and 43-46 are also equated to the set/subset of instructions and (in case of claims 1, 4, 6-8 elements) performing the functionalities of the corresponding limitations cited in claims 1, 4, 6-8, 40-41 and 43-46 and, as a result, meet the claimed limitation.

11. Additionally, it is noted that even if one would insist that the computer code instructions (/means/elements such as stages and sections) would expressly be separately identified, grouping and separating computer code according to a particular functionalities is old and well known in the art of computing (see Object Oriented Programming, for example) and grouping/separating the code instructions (/means/elements such as stages and sections) according to particular functionalities such as cited in claims 30-31 and 34-36 (and 40-41 and 43-46) would have been an obvious design choice offering the benefit of improved reliability and maintainability.

12. As per claim 4, not only a skilled artisan would recognize that packets are forwarded base on information in pocket headers but Daruwalla expressly teaches a group identifier being placed in a packet header (see Daruwalla's col. 15 lines 12-14).

13. As per claims 6-8, the exemplary device as shown in Fig. 11 implementing Daruwalla's invention meets the limitation of a single router and memory storing the previously discussed accessed ACLs meets a lookup unit. Additionally, a skilled artisan would recognize that data in memory is accessed/retrieved by an index (i.e. a pointer, memory address) and the entity storing and retrieving/generating the index meets the limitation of a content-addressable memory.

14. As per claim 9, SID1-n and VPN1-z entries in Fig. 7 meet the limitation of security group identifiers and tunnel identifiers, respectively.

Claim Rejections - 35 USC § 103

Claims 17-19, 27-29, 37-39 and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daruwalla (USPN 6693878) in view of Hamma (USPUB 2004/0202171).

Daruwalla teaches forwarding to/receiving by packets via VPN an egress router as discussed above.

15. As per claims 17-18, 27-28, 37-38 and 47-48 Daruwalla does not expressly disclose determining whether said packet can be forwarded by the egress router based on the SGI, a destination of the packet and an identifier of the tunnel . However, in analogous art, Hamma teaches determining whether a packet can be forwarded by the egress router based on the SGI, a destination of the packet and an identifier of the tunnel (The user router CPE A 214 transmits a VLAN packet PKT1 that has been tagged with VID=101. When the packet PKT1 enters the edge router PE A 211, the latter generates an MPLS packet PKT2 by removing the tag and adding, in place of the tag, a VPN label (=26: the VPN identifier of Enterprise A) and a forwarding label (=push label), and sends the packet PKT2 to the MPLS network 200. The MPLS packet PKT2 subsequently arrives at the target receive-side edge router PE C 213 along the preset route through the MPLS network while its forwarding label is replaced. The receive-side edge router PE C 213 creates a VLAN packet PKT3 by removing the labels and adding a VLAN identifier (VID=1501) to which the destination user router CPE C belongs and then sends this packet to the VLAN specified by VID=1501. As a result, the VLAN packet PKT3 arrives at the user router 231, see Hamma, para 93 for example). It would have been obvious to one of

ordinary skill in the art at the time of applicant's invention to configure Daruwalla's system to include determining whether said packet can be forwarded by the egress router based on the SGI, a destination of the packet and an identifier of the tunnel as taught by Daruwalla. One of ordinary skill in the art would have been motivated to perform such a modification in order to prevent terminal devices of one VPN accessing terminals of another VPN.

16. As per claims 19, 29, 39 and 49, the VLAN ID and VPN label conversion table 124 (as shown in Fig. 9 and detailed in Fig. 4) meets the limitation of ACL and clearly in order to translate VPN label to VID (VLAN ID) the copied VPN would have to be used as an index (Note the teaching in Hamma's paragraph 99: The receive-side edge router checks to see whether the MPLS packet has arrived (step 311). If the MPLS packet has arrived, the edge router removes the forwarding label attached as Layer 1 (step 312). Next, the edge router extracts the Layer-2 VPN label (step 313), refers to the table 124 indicating the correspondence between the VLAN ID (=VID) and VPN label (step 314) and checks to see whether the VID has been found (step 315). If the VID has not been found, the edge router discards the packet. If the VID has been found, however, the edge router removes the Layer-2 label and adds a tag that contains the VID to create a VLAN packet (step 316). Next, the edge router refers to the VPN label table 124 to find the output interface and sends the VLAN packet to this interface (step 317). The destination user router CPE C receives the VLAN packet and executes predetermined processing (step 318)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Poltorak whose telephone number is (571) 272-3840. The examiner can normally be reached Monday through Thursday from 9:00 a.m. to 4:00 p.m. and alternate Fridays from 9:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Zand can be reached on (571) 272-3811. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter Poltorak/

Examiner, Art Unit 2434